

NASA Success Story

Silicone Ablative Material for Shuttle Launch Pad



NASA's need for a stronger protective coating on Kennedy Space Center's launch pad during a Space Shuttle liftoff contributed significantly to the development of Dow Corning 3-6376 Fast Cure Elastomer, now being used commercially in the automotive and aerospace industries. The product is used by NASA to protect the Mobile Launcher Platform, the gantry structure, and other valuable equipment from the rocket's heat, abrasives, and chemical exposure. The two-part, primerless, 100-percent silicone material is used in the automotive industry to coat engine compartment firewalls and as a sealant.

NASA Involvement KSC has been working on better protective coatings and easier, environmentally-friendly applications since the 1980's. The 95-foot level and weather protection curtains of the launch pad structure were of particular concern due to the damage inflicted during a launch from heat, abrasion, and chemical exposure. The existing silicate coatings on the highly-exposed sections of the gantry failed to hold up. The damaged surfaces had to be recoated following each launch, a costly job. The surface area of the Mobile Launcher Platform beneath the solid rocket boosters was another trouble area. NASA decided to investigate the use of ablative-type coatings, which form tough, abrasion resistant surface films and also resist intense heat. The KSC Material Sciences Laboratory tested and evaluated many formulas of silicone ablative materials. A primerless, spray-on formula was of particular interest to replace the trowel applied silicone that required separate primer steps. Finally, in 1994, with NASA's recommendations and testing, Dow Corning's Fast Cure Elastomer was formulated. The Pad B refurbishment project included the use of the new product along with special spraying equipment and techniques. To

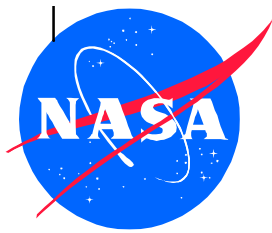
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date, the coated gantry surfaces have withstood over a dozen launches without the need of recoating. Dow Corning and the KSC Materials Science Laboratory are continuing to test and refine the ablative material.

Social/Economic Benefit The Dow Corning 3-6376 Fast Cure Elastomer benefits NASA and private industry in several ways. It saves NASA money on materials, equipment, and labor. It also reduces turnaround time for the launch structure due to fewer refurbishment operations. The new coating technology allows for easy spray application of large areas, and less solvents are used to help protect the delicate environment surrounding the launch pad. Due to NASA's need, the product was developed and brought to the commercial market faster than anticipated, benefiting the manufacturer.

Industry Partner
Dow Corning

NASA Partner
Kennedy Space Center

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